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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,658	07/22/2003	Hyoseop Shin	Q76495	4747

23373 7590 02/23/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

LU, CHARLES EDWARD

ART UNIT	PAPER NUMBER
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2161

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/623,658</p>	<p>Applicant(s)</p> <p align="center">SHIN, HYOSEOP</p>	
	<p>Examiner</p> <p align="center">Charles E. Lu</p>	<p>Art Unit</p> <p align="center">2161</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 59-86 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 59-86 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/6/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Action is in response to the Request for Continued Examination dated 1/18/2007. Claims 59-86 are pending. Claims 59-86 are rejected.
2. Amendments to the specification are noted. The objection to the specification is withdrawn.
3. Remarks concerning the 35 U.S.C. 101 rejections are noted. However, the 35 U.S.C. 101 rejections are maintained. All claims are now rejected under 35 U.S.C. 101.
4. Remarks concerning claim 64's 35 U.S.C. 112, second paragraph rejection are noted and found persuasive. The 35 U.S.C. 112, second paragraph rejection of claim 64 is withdrawn.
5. Arguments regarding the 35 U.S.C. 103 rejections have been fully considered but are moot in view of the new grounds of rejection presented below.

Claim Rejections - 35 USC § 101

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 59-86 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As to claim 59, the claim contains an abstract idea (e.g., "searching and extracting"). Therefore, the claim must be drawn to a practical application of the

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abstract idea, which may be established through either a physical transformation or a useful, concrete, and tangible result. See MPEP 2106.

The claim does not cause a physical transformation. For example, the steps of “searching” and “extracting” are reasonably understood to one of ordinary skill in the art as merely data manipulation without actually producing any physical transformation (para. 90).

The claim does not produce a useful, concrete, and tangible result. Merely “searching or extracting” is believed to be an abstract manipulation, failing to enable the “useful, concrete, and tangible” to be realized. The statement in the claim that recites an intended use or field of use (e.g., “for storage in the computer readable medium...for use in locating and extracting”) may raise a question as to the limiting effect of the language in the claim. The claimed invention as a whole must produce a “useful, concrete and tangible result.” Emphasis added. *State Street*, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. See MPEP 2106.

Also, the claim is drawn to nonfunctional descriptive material on a computer readable storage medium, which is non-statutory. Nonfunctional descriptive material in this case is a mere arrangement of data (various “sections” of data or various fields of data). See MPEP 2106.

As to the other independent claims, see the discussion of claim 59 above.

Dependent claims are rejected for failure to cure the deficiencies of the independent claims.

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Art rejection is applied in anticipation of Applicant amending the claims to overcome the rejection under 35 U.S.C. 101 above.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 59-74 and 77-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evain (XP002323574) provided by Applicant, in view of Shadmon et al (U.S. Patent 6,804,677).

As to claim 59, Evain teaches the following subject matter:

(i) Index structure for locating and extracting a fragment of metadata divided into fragments, the index structure contained in a computer readable storage medium (e.g., fig. 2-3, 1.1.1, 2.1.5, 2.2, 2.2.2, 2.2.4, 2.3); comprising

A list of keys corresponding to fields of the metadata (2.2.2, 2.3.1.1, 2.3.2);

Location information for defining a key and locating and extracting a fragment of the metadata (see XPath section 2.3.1.1, 2.3.2, also see above).

Evain does not expressly teach

(A) wherein the key is a multi key which 1) corresponds to a combination of fields of the metadata and 2) wherein the multi key is a plurality of keys used simultaneously to locate and extract the fragment of metadata.

(A1) However, the key in Evain is defined in XPath. XPath is a language for addressing parts of an XML document (e.g., 2.3.1.1).

(A2) Shadmon teaches that in a conventional XML search environment, finding a sub-tree with two properties (e.g., col. 24, ll. 33-35, col. 25, ll. 5-13, 20-27, col. 26, ll. 18-28). These types of queries are supported in XPath (col. 23, ll. 35-57). Furthermore, Shadmon teaches or suggests creating a multi-key, which has the properties of 1) and 2) above, since Shadmon describes looking for invoices where a buyer (field 1) is IBM and the seller (field 2) is RightOrder, and creating a key "ZIBMRightOrder" which is a key using a combination of fields of metadata used simultaneously to locate and extract fragments (col. 23, ll. 38-42).

(A3) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above from Shadmon, such that limitation (A) above is implemented for the search of metadata fragments in Evain using more than one key. One motivation would have been to facilitate searching for items with multiple properties (Shadmon, col. 24, ll. 33-35) using a single index lookup (col. 25, ll. 25-27).

As to claim 60, Evain, as applied above, further teaches comprising values of the multi key and the identification information on the metadata corresponding to the values of the multi key (see section 2.3.3 – 2.3.4).

As to claim 61, Evain, as applied above, further teaches wherein the identification information of the metadata comprises identification information on ones of the fragments of the metadata corresponding to the values of the multi-key (the identifier in the key index list identifies the key index corresponding to the value of the

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identifier, fig. 2, section 2.3.2 table, also see Evain's use of the XPath above, and use of handles within the fragment structure).

As to claim 62, Evain, as applied above, further teaches wherein the location information is expressed as XPath (see XPath section 2.3.1.1).

As to claim 63, Evain as applied above further teaches wherein at least a part of the location information is expressed as a predetermined code. (e.g., text code, see XPath text in Evain). Also see Shadmon expressing location information as a predetermined code (see e.g., fig. 4 for encoding strings).

As to claim 64, Evain, as applied above, further teaches wherein the location information comprises location information of a fragment including the multi key and location information of the multi key included within the fragment (see XPath section 2.3.1.1, 2.3.2).

As to claim 65, Evain, as applied above, further teaches wherein the metadata is metadata as defined by the TV Anytime Forum (e.g., section 2.2, introduction 1.1.1).

As to claim 66, Evain, as applied above, further teaches a sub section including ranges of values of the multi key and the identification information on ones of the fragments of the metadata corresponding to the values of the multi key (see section 2.3.3 – 2.3.4).

Evain, as applied above, further teaches a section including representative key values representing the respective ranges of values of the multi key (also see section 2.3.3 – 2.3.4).

As to claim 67, Evain, as applied above, further teaches wherein each of the representative key values is a value among the corresponding range of values of the key (see section 2.3.3).

As to claim 68, Evain, as applied above, further teaches wherein the list includes identification information on the section (e.g., fig. 2, key index list has a key_index_identifier), and the section further comprises identification information on the sub section (e.g., fig. 2, key index has a sub_index_identifier).

As to claims 69 and 70, Evain teaches an index structure suitable for locating and extracting metadata divided into fragments, the index structure contained in a computer readable storage medium (see above).

Evain does not expressly teach limitation (A), repeated here.

The complete discussion on paragraphs (A1-A3) is repeated here.

Furthermore as to claim 69, Evain, as applied above, teaches or suggests identification information of the metadata corresponding to the values of the multi-keys, wherein the multi keys correspond to a combination of fields of the metadata (e.g., see section 2.3.2-2.3.4).

Claims 71-74 are drawn to substantially the same subject matter as claims 63, 61, and 66, discussed above.

As to claim 77, Evain teaches the following claimed subject matter:

Limitation (i) as addressed above;

A key index list section comprising a list of keys corresponding to the fields of the metadata (see key index list in fig. 2, also see above).

Evain does not expressly teach a list of multi-keys, each multi-key corresponding to a combination of fields of the metadata used simultaneously to locate and extract a fragment of metadata.

The complete discussion on paragraphs (A1-A3) is repeated here.

Evain, as applied above, further teaches a key index section (see fig. 2, key index) and sub-key index section (also see fig. 2, sub key index).

Evain, as applied above, teaches wherein for a multi key of the key index list, the sub-key index section comprises ranges of values of the key and identification information on ones of the fragments of the metadata corresponding to the values of the key (see section 2.3.3 – 2.3.4), and wherein the key index section comprises representative values representing the ranges of the multi-key (also see section 2.3.3 – 2.3.4), because in the combination Jenkins allows the use of multi-keys, as discussed above.

As to claim 78, Evain, as applied above, further teaches wherein the key index list section further comprises location information for defining a multi key (see syntax of a key index list in section 2.3.2, see XPath section 2.3.1.1, 2.3.2) and wherein at least a part of the location information is expressed as a predetermined code (e.g., text code, see XPath text in Evain). Also see Shadmon expressing location information as a predetermined code (see e.g., fig. 4 for encoding strings).

Claims 79-81 is drawn to substantially the same subject matter as claims 59, 69, and 77 respectively, discussed above.

As to claims 82-84, Shadmon as applied above further teaches or suggests wherein the multi key is comprised of a plurality of attributes of the fragment of metadata. See discussion above for the independent claims.

Claims 85-86 are drawn to substantially the same subject matter as claim 59 and other independent claims discussed above.

8. Claims 75-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evain (XP002323574) provided by Applicant, in view of Shadmon et al (U.S. Patent 6,804,677), further in view of Jenkins, Jr. (U.S. Patent 6,496,830).

As to claim 75, Evain and Shadmon do not expressly teach

(B) wherein with respect to comparison of the values of a multi key in size, the multi key comprises fields of the metadata which are prioritized and the combined fields are compared in sequence starting from a first field having a highest order of priority, wherein the values are compared on an arithmetic basis where the values of the multi key are numerical or ranked in lexicographical order where the values of the multi key are alphabetical.

(B1) However, Jenkins teaches wherein with respect to comparison of the values of a composite (multi-) key in size (lexicographically or numerically), the multi key comprises fields of the metadata (e.g., grade level and student identification, col. 2, ll. 17-38) which are prioritized and the combined fields are compared in sequence (col. 2, ll. 17-38) starting from a first field having a highest order of priority (e.g., first grade level), wherein the values are compared on an arithmetic basis where the values of the

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multi key are numerical or ranked in lexicographical order where the values of the multi key are alphabetical (col. 2, ll. 18-39, col. 8, ll. 32-55).

(B2) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Evain and Shadmon with the above, such that limitation (B) above is implemented. The motivation would have been to improve processing of queries involving multiple field constraints, as taught by Jenkins (col. 2, ll. 17-18).

As to claim 76, Jenkins as applied above further teaches wherein first and second values of the multi key corresponds to $(a_1 \dots a_n)$ and $(b_1 \dots b_n)$ respectively (e.g., two composite keys comprising a grade level and student id as discussed above), and the first and second multi-key values are the same size (equal, therefore one key doesn't sort higher than the other) when there is no field having a different size (col. 8, ll. 32-55).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL
Assistant Examiner
AU 2161
2/16/2007

Apu Mofiz
Apu Mofiz
SPE, TC 2100